

**WHAT IS CLAIMED IS:**

1. An apparatus comprising:
  - a processor;
  - memory in communication with the processor; and
  - a first operating system configured for use with the processor and the memory;and
  - at least one computer program configured for use with the processor and the memory, the at least one computer program comprising a template instantiation portion configured to provide template source code and a cross compiler portion configured to generate template object code from the template source code, the template object code configured for use on a second operating system different from the first operating system.
2. The apparatus of claim 1, wherein the cross compiler portion is a separate computer program from the template instantiation portion.
3. The apparatus of claim 1, wherein the first operating system is selected from OS/2, Linux, Unix, Solaris, Java Virtual Machine, Windows2000, Windows NT, Windows95, and Windows98.
4. The apparatus of claim 1, wherein the cross compiler is configured to compile a programming language selected from Pascal, Cobol, FORTRAN, Ada, Java, C, C+, and C++.
5. A method for automatic instantiation of templates for a cross compiler, comprising:
  - providing source code;
  - extracting template information from the source code;
  - providing the template information to a template repository;
  - generating template source code in response to information from the template information; and

1 using the cross compiler to generate first template object code corresponding to  
2 the template source code; and

3 wherein the first template object code is operable on a target computer system  
4 having a linker.

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6 6. The method of claim 5, further comprising:  
7 amending the template source code in response to template dependency on  
8 another template; and  
9 generating a list of the template source code as amended.

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11 7. The method of claim 6, further comprising:  
12 compiling the template source code as amended into second template object  
13 code.

14  
15 8. The method of claim 7, wherein the amending of the template source code  
16 comprises identifying at least one addition or change to the template source code  
17 within the template repository.

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19 9. The method of claim 8, further comprising linking the second template object  
20 code with the linker to provide machine executable code operable on the target  
21 computer system.

22  
23 10. A method for automatic instantiation of templates from source code for use  
24 with a cross compiler residing on an origination computer system, comprising:  
25 providing a template repository in communication with the cross compiler;  
26 providing source code modules;  
27 generating at least one template information file from the source code modules  
28 using the cross compiler;  
29 providing the at least one template information file to the template repository;  
30 generating template source code in response to the at least one template  
31 information file; and

1 generating object code using the cross compiler and the at least one template  
2 source code file;

3 wherein the object code is intended for linking on a target computer system  
4 having a operating system different in kind than that of the origination computer  
5 system.

6  
7 11. The method of claim 10, further comprising amending the source code modules  
8 with the at least one template source code file associated with the at least one template  
9 information file.

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11 12. The method of claim 11, further comprising providing the object code to the  
12 target computing system, wherein the target computer system includes a linker  
13 configured to link the object code.

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15 13. The method of claim 12, wherein the linker is not configured to instantiate a  
16 template.

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18 13. The method of claim 12, further comprising:  
19 generating a template information file list associated with the at least one  
20 template information file; and  
21 generating a list of the at least one template source code file.

22  
23 14. The method of claim 13, further comprising generating at least one more  
24 template information file corresponding to the template source code file.

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26 15. The method of claim 14, further comprising generating another template  
27 information file list associated with both the at least one template information file and  
28 the at least one more template information file.

29  
30 16. A system for cross compilation with automatic template instantiation,  
31 comprising:  
32 a first computer programmed with a first operating system, the first computer  
33 comprising:

1 source code modules;  
2 a cross compiler configured to generate object code modules and  
3 template information files from the source code modules;  
4 a template repository configured to receive the template information  
5 files; and  
6 a program configured to generate a list of the template information files,  
7 template source code files and a list of template source code files, the program  
8 configured to locate the list of the template information files, the template source code  
9 files and the list of template source code files in the temporary repository, the program  
10 configured to employ the cross compiler to generate template object code files from the  
11 template source code files.

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13 17. The system of claim 16 further comprising:

14 a second computer programmed with a second operating system different in  
15 kind from the first operating system, the second computer in communication with the  
16 first computer to receive the template object code files.

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18 18. The system of claim 17, wherein the template object code files are provided to  
19 the second computer using a machine-readable signal bearing medium.

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21 19. The system of claim 18, wherein the machine-readable signal bearing medium  
22 is a transmission medium.

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24 20. The system of claim 18, wherein the machine-readable signal bearing medium  
25 is a storage medium.

26  
27 21. A signal-bearing medium containing a program which, when executed by a  
28 processor in response to receiving template information, causes execution of a method  
29 comprising:

30 generating template source code in response to the template information; and  
31 invoking a cross compiler to generate first template object code corresponding  
32 to the template source code;

1            wherein the first template object code is linkable on a target computer system  
2            having a linker without template instantiation support.

3  
4            22.    The signal-bearing medium of claim 21, further comprising:  
5            amending the template source code in response to template dependency on  
6            another template; and  
7            generating a list of the template source code as amended.

8  
9            23.    The signal-bearing medium of claim 22, further comprising:  
10           compiling the template source code as amended into second template object  
11           code.

12  
13           24.    The signal-bearing medium of claim 23, wherein the amending of the template  
14           source code comprises identifying at least one addition or change to the template  
15           source code within the template repository.

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17           25.    The signal-bearing medium of claim 24, further comprising linking the second  
18           template object code with the linker to provide machine executable code operable on  
19           the target computer system.

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